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The miracle fruit: The next generation anti-diabetic drug in type 2 diabetes mellitus- a comprehensive study in animal model

Background: Diabetes mellitus type 2 is a chronic metabolic disorder which is rapidly increasing in incidence globally. The International Diabetes Federation (IDF) reports that as of 2013, there were more than 382 million people living with diabetes. As the currently available anti-diabetic treatment modalities have not been meeting the requirements, there is a dire need to identify a more number of safe and effective anti-diabetic agents.

Aim: The aim of this study was to identify the effectiveness of *Synsepalum dulcificum* fruit (miracle fruit) extract in reducing blood glucose levels in streptozotocin (STZ) nicotinamide (Nam) induced diabetic rats.

Methods: In this experimental research, 29 Sprague-Dawley (SD) rats were divided into groups. Group one was normal controls-6 rats and group two was streptozotocin-nicotinamide induced diabetic-23 rats. Again these 23 SD rats were divided into four groups as: Group one- diabetic controls-5, group two- glibenclamide (600 µg/kg) treated-6, group three- medium dose fruit extract (250 mg/kg) treated-6 and group four- high dose fruit extract (500 mg/kg) treated-6. All rats were assessed for fasting blood glucose and body weights every week during the span of 21 days period of study. Before starting the experimental research the body weights and fasting blood glucose were measured for all the rats. Then the toxicity of the fruit extract was tested with the highest dose of 5000 mg/kg on 12 SD rats and it showed that no adverse effects at all on the rats' health.

Results: Eventually this study revealed that high dose fruit extract (500 mg/kg) only could significantly reduce fasting blood glucose levels ($p < 0.001$) even though it caused a slight increase in body weight.

Conclusion: This study revealed that *Synsepalum dulcificum* fruit (miracle fruit) extract shows acceptable anti-hyperglycemic effects in rats.

Biography

Swamy K B has been awarded PhD by Andhra University, India. He has taken his Master's Degree i.e., MS (in Clinical Anatomy) from Andhra Medical College, India. He took his Medical Degree (MBBS) in 1976. He is specialized in Human Genetics and Herbal Medicine. He has conducted many researches on Herbal Medicine and Diabetes and "Brain size and Intelligence Quotient (IQ)" on which he has conducted researches and has published more than 25 research papers in high impact factor indexed international journals. He is a founder Anatomist for many Medical Universities in Malaysia. He is the former Professor and Head of the Department of Anatomy for many Medical Schools in India and Malaysia. He has been serving as an Editorial Board Member for many reputed journals.

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